

CLAIMS

What is claimed is:

1. A polymer transfer and deposition system comprising:
a source of plasticized polymer;
a forming device;
conveyor means;
a carrier of generally planar shape attached to said conveyor means, said carrier being located beneath said source of plasticized polymer and independent thereof;
and
drive means for operating said conveyor means for moving said carrier to a first position underneath said source where a first layer of plasticized polymer is deposited on said carrier and thereafter moving said carrier with said first layer of plasticized polymer into said forming device which produces an article of a desired shape from the combined carrier and the first layer of plasticized polymer.

2. A polymer transfer and deposition system defined in claim 1, wherein the first layer of plasticized polymer adheres to said carrier.

3. The polymer transfer and deposition system defined in claim 1, wherein said carrier comprises a plurality of layers.

4. The polymer transfer and deposition system defined in claim 1, wherein said carrier is made from a polyolefin or polyester material of non-woven construction with a weight of at least 0.75 oz./square yard.

5. A polymer transfer and deposition system defined in claim 1, wherein said carrier is made from material taken from the group including a fluoropolymer film, a coated film, and a pre-printed film to provide a specific surface characteristic in the finished article.

6. The polymer transfer and deposition system defined in claim 1, wherein said carrier forms the finish surface of the article produced in said forming device.

7. The polymer transfer and deposition system defined in claim 1, said system including a robotic device wherein, prior to said conveyor means moving said carrier into said forming device, said robotic device is energized to place an insert on the first layer of plasticized polymer;

 said conveyor means again moving said carrier into a position underneath said source of plasticized polymer where a second layer of plasticized polymer is deposited on said carrier over the insert and the first layer;

 said drive means being effective to operate said conveyor means to move said carrier, insert and said first and second layers of plasticized polymer into said forming device.

8. The polymer transfer and deposition system as defined in claim 7, wherein the insert is made from a rigid foam material which is encapsulated by the first and second layers of plasticized polymer.

9. A polymer and transfer and deposition system as defined in claim 7, wherein the insert is of open wall or honeycomb core construction which is encapsulated by the first and second layers of plasticized polymer.

10. A polymer transfer and deposition system defined in claim 1, wherein a surface material is laminated to the exposed side of the first layer of the plasticized polymer prior to the carrier being moved by said conveyor means into said forming device.

11. A polymer transfer and deposition system defined in claim 7, wherein a surface material is laminated to the exposed side of said second layer of plasticized polymer.

12. A polymer transfer and deposition system as defined in claim 1, wherein two sources of plasticized polymer are provided, said polymer sources being aligned, spaced apart and arranged parallel to one another;

 said drive means being effective to operate said conveyor means and move the carrier under the first source of plasticized polymer to deposit the first layer thereon and to thereafter move the carrier under said second source of plasticized polymer to place a second layer of plasticized polymer over the first layer of plasticized polymer deposited on the carrier.

13. A polymer transfer and deposition system as defined in claim 12, wherein the system includes a robotic device which places an insert on the first layer of plasticized polymer prior to the second layer being placed on the insert and over the first layer, all prior to moving the combined carrier with the insert and deposited layers of plasticized polymer into said forming device.

14. The polymer transfer and deposition system defined in claim 12, wherein said plasticized polymer sources consist of different plasticized polymer compositions.

15. A polymer transfer and deposition system as defined in claim 13, wherein at least one of said plasticized polymers contains continuous fiber reinforcements.

16. A polymer transfer and deposition system as defined in claim 1, wherein said forming device contains a cavity or concave section on one side and a core or convex section on the opposite side where said forming device compresses the carrier and the layer of plasticized polymer into an article of a desire shape.

17. A polymer transfer and deposition system as defined in claim 16, wherein at least two formed shapes having matching edges on the concave side when said matching edges are opposite each other, with each matching edge having the carrier side on the matching edge surface where the carrier side edges are sealed together to form a closed container.

18. A polymer transfer and deposition system as defined in claim 1, wherein the carrier is supported by an undercarriage during the depositing of the first layer of plasticized polymer on the carrier, said undercarriage separating from the carrier when the carrier enters said forming device prior to producing an article of the desired shape.

19. A polymer transfer and deposition system as defined in claim 18, wherein said undercarriage holds the carrier via a vacuum, with the vacuum being discontinued prior to forming the article of desired shape in said forming device.

20. A polymer transfer and deposition system defined in claim 18, wherein said undercarriage holds the carrier with clamps, said clamps separating from the carrier prior to forming the article of desired shape in said forming device.

21. A polymer transfer and deposition system defined in claim 1, wherein the carrier composite is made from a material taken from the group comprising a film, felt, fiber, foil, laminate construction, thermoset and a molten thermoplastic material.

22. A polymer transfer and deposition system defined in claim 1, wherein the plasticized polymer is taken from the group of plastics including polypropylene, high density polyethylene, polyester, thermoplastic olefin and styrene based thermoplastics.

23. A carrier transfer molding device comprising a plastic polymer source; a forming device; and

a carrier of generally planar shape, located beneath and independent of said plasticized polymer source; said carrier being movable under said polymer source while the plasticized polymer is deposited on the carrier; said carrier and said deposited polymer being movable into said forming device where said forming device produces a desired shape from the combined carrier and deposited polymer.

24. A carrier transfer molding device as defined in claim 23, wherein the plasticized polymer adheres to the carrier.

25. A carrier transfer molding device as defined in claim 23, wherein the carrier contains more than one layer.

26. A carrier transfer molding device as defined in claim 23, wherein the carrier is made from a material of non-woven construction, with a weight of at least .75 oz/square yard.

27. A carrier transfer molding device as defined in claim 23, wherein the carrier is made from fluoropolymer film.

28. A carrier transfer molding device as defined in claim 23, wherein the carrier forms the finished surface of the article produced in the forming device.

29. A carrier transfer molding device as defined in claim 23, wherein the carrier passes under said plasticized polymer source at least two times with at least one insert placed between the layers of the plasticized polymer prior to moving into said forming device.

30. A carrier transfer molding device as defined in claim 29, wherein the insert is of rigid foam construction.

31. A carrier transfer molding device as defined in claim 29, wherein the insert is of open wall or honeycomb core construction.

32. A carrier transfer molding device as defined in claim 23, wherein a surface material is laminated to said exposed polymer on said carrier prior to moving into said forming device.

33. A carrier transfer molding device as defined in claim 23, wherein said polymer source consists of at least two said plasticized polymer sources; said polymer sources being aligned and parallel; said carrier passing below both of said polymer sources; said polymer sources depositing said plasticized polymer on said carrier in sequence.

34. A carrier transfer molding device as defined in claim 33, wherein at least one insert is placed between the layers of said plasticized polymer prior to moving into said forming device.

35. A carrier transfer molding device as defined in claim 33, wherein said plasticized polymer sources consist of different plasticized polymer compositions.

36. A carrier transfer molding device as defined in claim 33, wherein at least one of said plasticized polymers contains continuous fiber reinforcements.

37. A carrier transfer molding device as defined in claim 23, wherein said forming device contains a cavity or concave section on one side and a core or convex section on the opposite side where said forming device compresses said carrier and said plasticized polymer into a desired shape.

38. A carrier transfer molding device as defined in claim 37, wherein at least two formed shapes have matching edges on the concave side when said matching edges are opposite each other, with each matching edge having the carrier side on the matching edge surface where the carrier side edges are sealed together to form a closed container.

39. A carrier transfer molding device as defined in claim 23, and wherein said carrier is supported by an undercarriage during said polymer deposit on said carrier, said undercarriage separating from said carrier in said forming device prior to forming the desired shape.

40. A carrier transfer molding device as defined in claim 39, wherein said undercarriage holds the carrier via vacuum, with the vacuum being discontinued from said carrier prior to forming the desired shape in said forming device.

41. A carrier transfer molding device as defined in claim 39, wherein said undercarriage holds the carrier with clamps, said clamps separating from the carrier prior to forming the desired shape in said forming device.

42. A carrier transfer molding device as defined in claim 23 wherein a second carrier is provided, each carrier with deposited polymer from said polymer source moving into said forming device to form two desired shapes.